

CLAIMS

What is claimed is:

1. A method of delivering conditioned air to a space, comprising the steps of:
sensing a condition in the space;
selecting a duration for a duty cycle;
selecting a time period during each duty cycle which is dependent on the condition sensed in the space;
applying conditioned air to the space during said time period of each duty cycle; and
stopping the application of conditioned air to the space during the part of each duty cycle that does not include said time period.
2. A method as set forth in claim 1, wherein said step of applying conditioned air to the space comprises applying conditioned air to the space at a substantially constant velocity and volume rate of flow during said time period of each duty cycle.
3. A method as set forth in claim 1, wherein the step of sensing a condition in the space comprises sensing an air temperature in the space, and including the step of adjusting the duration of said time period in response to changes in the temperature sensed in the space.
4. A method as set forth in claim 1, wherein said step of applying conditioned air to the space comprises applying conditioned air to the space at a plurality of different locations therein.
5. A method as set forth in claim 4, wherein:
said time period for each of said locations has substantially the same duration; and

said time period for at least one of said locations is initiated during each duty cycle at a later time than said time period is initiated for another of said locations during each duty cycle.

6. A method as set forth in claim 1, wherein each duty cycle has a duration less than two minutes.

7. Apparatus for delivering conditioned air to a space, comprising:

a source of conditioned air;

a terminal unit communicating with said source to receive conditioned air therefrom and apply the air to the space, said terminal unit including a damper having a fully open condition wherein conditioned air is applied to the space by said terminal unit and a closed condition wherein the flow of conditioned air from said terminal unit is blocked by said damper;

a sensor in the space sensing a selected condition therein; and

a control system having sequential duty cycles each of a selected duration, said control system being responsive to the condition sensed by said sensor to effect the fully open condition of said damper for a selected time period during each duty cycle and the closed condition of said damper for the part of each duty cycle that does not include said selected time period.

8. Apparatus as set forth in claim 7, wherein said source supplies conditioned air to said terminal unit at a substantially constant pressure.

9. Apparatus as set forth in claim 8, wherein said source supplies conditioned air to said terminal unit at a pressure less than about .10 inch wg.

10. Apparatus as set forth in claim 7, wherein said sensor is operable to sense an air temperature in the space and said control system is arranged to adjust the duration of said selected time period when the temperature sensed by said sensor changes.

11. Apparatus for delivering conditioned air to a space, comprising:

a sensor for sensing a selected condition in the space;

a plurality of terminal units each receiving conditioned air for application to the space, said terminal units being spaced apart in the space;

a damper for each terminal unit having a fully open condition wherein conditioned air is applied to the space and a closed condition wherein the flow of conditioned air to the space is blocked, each damper having successive duty cycles each including a selected time period dependent on the condition sensed by said sensor; and

a control system for effecting the fully open condition of each damper during said selected time period of each duty cycle and the closed condition of each damper during the part of each duty cycle that does not include said selected time period, said control system initiating the duty cycles of at least one damper at a different time than the duty cycles of another of said dampers is initiated.

12. Apparatus as set forth in claim 11, wherein:

said duty cycle for each damper has substantially the same duration; and

said control system is arranged to vary the duration of said selected time period for each damper in response to changes in the temperature sensed by said sensor.

13. Apparatus for delivering conditioned air to a room having a space located above a ceiling overlying the room, said apparatus comprising:

a source of conditioned air;

an enclosed supply plenum located in said space immediately above the ceiling and communicating with said source to receive conditioned air therefrom;

a terminal unit on said ceiling arranged to receive conditioned air from said supply plenum and apply the conditioned air to the room;

a temperature sensor in said room for sensing the air temperature therein;

a damper associated with said terminal unit having a fully open condition wherein conditioned air is applied to the room by said terminal unit and a closed condition wherein the flow of conditioned air from said terminal unit is blocked, said damper having successive duty cycles each including a selected time period dependent on the temperature sensed by said sensor;

a control system for effecting the fully open condition of said damper during said selected time period of each duty cycle and the closed condition of said damper during the part of each duty cycle that does not include said selected time period;

a return air plenum in said space separated from said supply plenum and communicating with said source to supply return air thereto from the room; and

a return register in the room communicating with said return air plenum to supply return air thereto.

14. Apparatus as set forth in claim 13, wherein said control system is arranged to change the duration of said selected time period of each duty cycle in response to changes in the temperature sensed by said sensor.